CHAPTER 5

WATER QUALITY PARTNERSHIPS IN THE EMORY RIVER WATERSHED

5.1 BACKGROUND. The Watershed Approach relies on participation at the federal, state, local and nongovernmental levels to be successful. Two types of partnerships are critical to ensure success:

- Partnerships between agencies
- Partnerships between agencies and landowners

This chapter describes both types of partnerships in the Emory River Watershed. The information presented is provided by the agencies and organizations described.

5.2 FEDERAL PARTNERSHIPS.

5.2.A. Natural Resources Conservation Service. The Natural Resources Conservation Service (NRCS), an agency of the U.S. Department of Agriculture, provides technical assistance, information, and advice to citizens in their efforts to conserve soil, water, plant, animal, and air resources on private lands.

Performance & Results Measurement System (PRMS) is a Web-based database application providing USDA Natural Resources Conservation Service, conservation partners, and the public fast and easy access to accomplishments and progress toward strategies and performance. The PRMS may be viewed at http://sugarberry.itc.nrcs.usda.gov/netdynamics/deeds/index.html. From the PRMS Products Menu, select "Products," then select "Conservation Treatments." Select the desired program and parameters and choose "Generate Report."

The data can be used to determine broad distribution trends in service provided to customers by NRCS conservation partnerships. These data do not show sufficient detail to enable evaluation of site-specific conditions (e.g., privately-owned farms and ranches) and are intended to reflect general trends.

CONSERVATION PRACTICE	ACRES
Conservation Buffer	64
Erosion Control	2,055
Irrigation Management	0
Nutrient Management Applied	1,784
Pest Management	1,604
Prescribed Grazing	1,356
Salinity and Alkalinity Control	0
Tree and Shrub Practices	2
Tillage and Residue Management	71
Wildlife Habitat Management	281
Wetlands Created, Restored, and Enhanced	0
Total	**7,215**

Table 5-1. Landowner Conservation Practices in Partnership with NRCS in Emory River Watershed. *Data are from PRMS for October 1, 1999 through September 30, 2000 reporting period. More information is provided in Emory-Appendix V.*

5.2.B. United States Geologic Survey Water Resource Programs—Tennessee District.

The U.S. Geological Survey (USGS) provides relevant, objective scientific studies and information to evaluate the quantity, quality, and use of the Nation's natural resources. In addition to national assessments, the USGS also conducts hydrologic investigations in cooperation with numerous federal, state, and local agencies to address issues of local, regional, and national concern.

The USGS collects hydrologic data to document current conditions and provide a basis for understanding hydrologic systems and solving hydrologic problems. In Tennessee, the USGS records streamflow continuously at more than 60 gaging stations equipped with recorders and makes instantaneous measurements of streamflow at many other stations. Groundwater levels are monitored statewide, and the physical, chemical and biological characteristics of surface and ground waters are analyzed. USGS activities also include the annual compilation of water-use records and collection of data for national baseline and water-quality networks. National programs conducted by the USGS include the National Atmospheric Deposition Program, National Stream Quality Accounting Network, and the National Water-Quality Assessment Program.

Continuous Streamflow Information—Emory River Basin

- 03540500 Emory River at Oakdale, TN
- 03539800 Obed River near Lancing, TN
- 03539778 Clear Creek at Lilly Bridge near Lancing, TN
- 03539600 Daddy's Creek near Hebbertsburg, TN

For streamflow data, contact Donna Flohr at (615) 837-4730.

More information on the activities of the USGS can be obtained by accessing the Tennessee District home page on the World Wide Web at http://tenn.er.usgs.gov/

5.2.C. U.S. Fish and Wildlife Service. The U.S. Fish and Wildlife Service is responsible for the recovery of species listed as threatened or endangered under the Endangered Species Act of 1973. There are currently 88 federally-listed species in Tennessee. Fifty-eight of these are aquatic species scattered throughout the State's many watersheds.

The Emory River watershed is home to four federally-listed aquatic species: the purple bean (*Villosa perpurpurea*), Cumberland bean (*Villosa trabalis*), Alabama lamp mussel (*Lampsilis virescens*), and spotfin chub (*Cyprinella monacha*). Two other species, the fine-rayed pigtoe (*Fusconaia cuneolus*) and turgid blossom pearly mussel (*Epioblasma turgidula*), historically occurred in the watershed but appear to have disappeared over the last several decades.

The Service utilizes a variety of programs to assist in the protection and recovery of these species. One program, Partners for Fish and Wildlife, allows the Service to work cooperatively with various landowners along the river to restore streambanks, reestablish riparian vegetation, and implement best management practices (BMPs) to reduce the amount of sediment and nutrients entering the river. These activities will help improve water quality and enhance habitat within the river.

For more information, contact the U.S. Fish and Wildlife Service Ecological Services Field Office homepage at: http://www.cookeville.fws.gov.

Threatened and Endangered Species Critical Habitat (50 CFR 17.95, page 416).

The U.S. Fish and Wildlife Service works to protect the following stream reaches that are designated threatened and endangered species critical habitat (50CFR17.95, page 416) for the federally threatened spotfin chub, *Cyprinella monacha* (*Hybopsis monacha*):

- Morgan County
  - Clear Creek
  - Daddy's Creek
  - Emory River
  - Obed River

- Fentress County
  - Clear Creek

- Cumberland County
  - Obed River (upstream to I-40)
  - Clear Creek (upstream to I-40)
  - Daddy's Creek (upstream to U.S. 127)

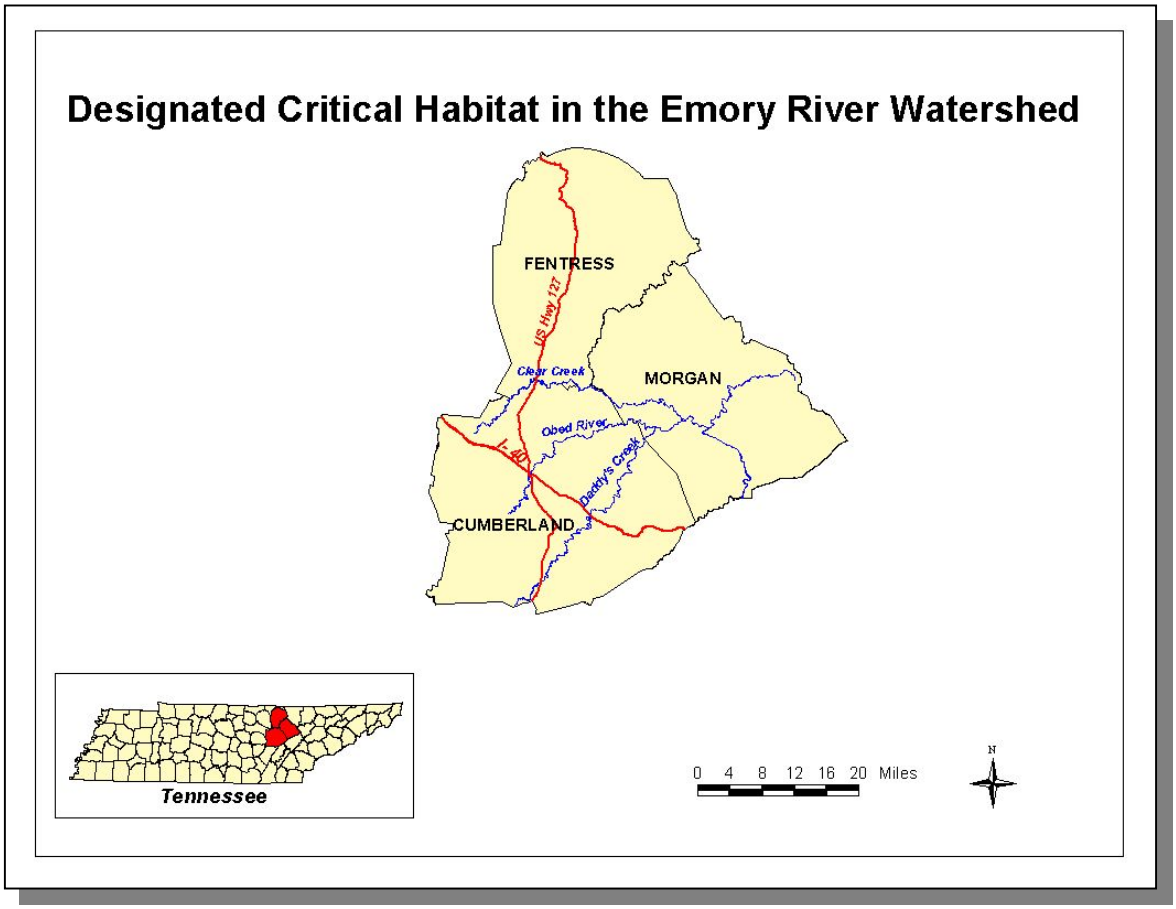

Figure 5-1. Illustration of Critical Habitat Area for Spotfin Chub in Emory River Watershed.

For more information, please contact:

Robert Tawes, Listing/Recovery Biologist
U.S. Fish and Wildlife Service
Tennessee/Kentucky Field Office
446 Neal Street
Cookeville, TN 38501
931/528-6481 x213
931/528-7075 (fax)
robert_tawes@fws.gov

5.2.D. Tennessee Valley Authority (TVA). TVA's vision for the 21st century is to generate prosperity for the Tennessee Valley by promoting economic development, supplying low-cost, reliable power, and supporting a thriving river system. TVA is committed to the sustainable development of the region and is engaged in a wide range of watershed protection activities. To assist communities across the Tennessee Valley actively develop and implement protection and restoration activities in their local watersheds, TVA formed 12 multidisciplinary Watershed Teams. These teams work in partnership with business, industry, government agencies, and community groups to manage, protect, and improve the quality of the Tennessee River and its tributaries for fishing, swimming, drinking, and recreational uses. TVA also operates a comprehensive monitoring program to provide real-time information to the Watershed Teams and other entities about the conditions of these resources. The following is a summary of TVA's resource stewardship activities in the Emory River watershed.

MONITORING

Stream Bioassessment

Conditions of water resources in Emory River watershed streams were measured using three independent methods; Index of Biotic Integrity (IBI), number of mayfly, stonefly, and caddisfly taxa (EPT), and Habitat Assessment. Not all of these tools were used at each stream sample site.

IBI -- The index of biotic integrity (IBI) assesses the quality of water resources in flowing water by examining a stream's fish assemblage. Fish are useful in determining long-term (several years) effects and broad habitat conditions because they are relatively long-lived and mobile. Twelve metrics address species richness and composition, trophic structure (food preferences or structure of the food chain), fish abundance, and fish health. Each metric reflects the condition of one aspect of the fish assemblage and is scored against reference streams from the same ecoregion known to be of very high quality. Potential scores for each of the twelve metrics are 1-poor, 3-intermediate, or 5-the best to be expected. Scores for the 12 metrics are summed to produce the IBI for the site.

EPT -- As with fish, the number and types of aquatic insects are indicative of the general quality of the environment in which they live. Unlike fish, aquatic insects are useful in determining short-term and localized impacts because they are short-lived and have limited mobility. The method TVA uses involves only qualitative sampling and field identification of mayflies (Ephemeroptera), stoneflies (Plecoptera), and caddisflies (Trichoptera) to the family taxonomic level (EPT). The score for each site is simply the number of EPT families. The higher EPT scores are indicative of high quality streams because these insect larvae are intolerant of poor water quality. Scores in the Emory River watershed ranged from a low of 5 to a high of 21 in the most pristine stream.

Habitat Assessment -- The quality and quantity of habitat (physical structure) directly affect aquatic communities. Habitat assessments were done at most stream sampling sites to help interpret IBI and EPT results. If habitat quality at a site is similar to that found at a good reference site, any impacts identified by IBI and EPT scores can reasonably be attributed to water quality problems. However, if habitat at the sample

site differs considerably from that at a reference site, lower than expected IBI and EPT scores might be due to degraded habitat rather than water quality impacts.

The habitat assessment method used by TVA (modified EPA protocol) compares observed instream, channel, and bank characteristics at a sample site to those expected at a similar high-quality stream in the region. Each of the stream attributes listed below is given a score of 1 (poorest condition) to 4 (best condition). The overall habitat score for the sample site is simply the sum of these attributes. Scores can range from a low of 10 to a high of 40:

1. Instream cover (fish)
2. Epifaunal substrate
3. Embeddedness
4. Channel Alteration
5. Sediment Deposition
6. Frequency of Riffle
7. Channel Flow Status
8. Bank vegetation protection -- Left bank and right bank, separately
9. Bank stability -- Left bank and right bank, separately
10. Riparian vegetation zone width -- Left bank and right bank, separately

Sample Site Selection -- Sample site selection is governed primarily by study objectives, stream physical features, and stream access. TVA's objective is to characterize the quality of water resources within a watershed (11-digit hydrologic unit). Sites are typically located in the lower end of sub-watersheds and at intervals on the mainstem to integrate the effects of land use. The accompanying map shows all of the _33 sites sampled in the Emory River watershed by TVA since 1991. These sites are typically sampled every five years to keep a current picture of watershed condition. The next round of sampling in the Emory River watershed will be coordinated with the monitoring phase of TDEC's Watershed Cycle which calls for data collection to begin again in 2002.

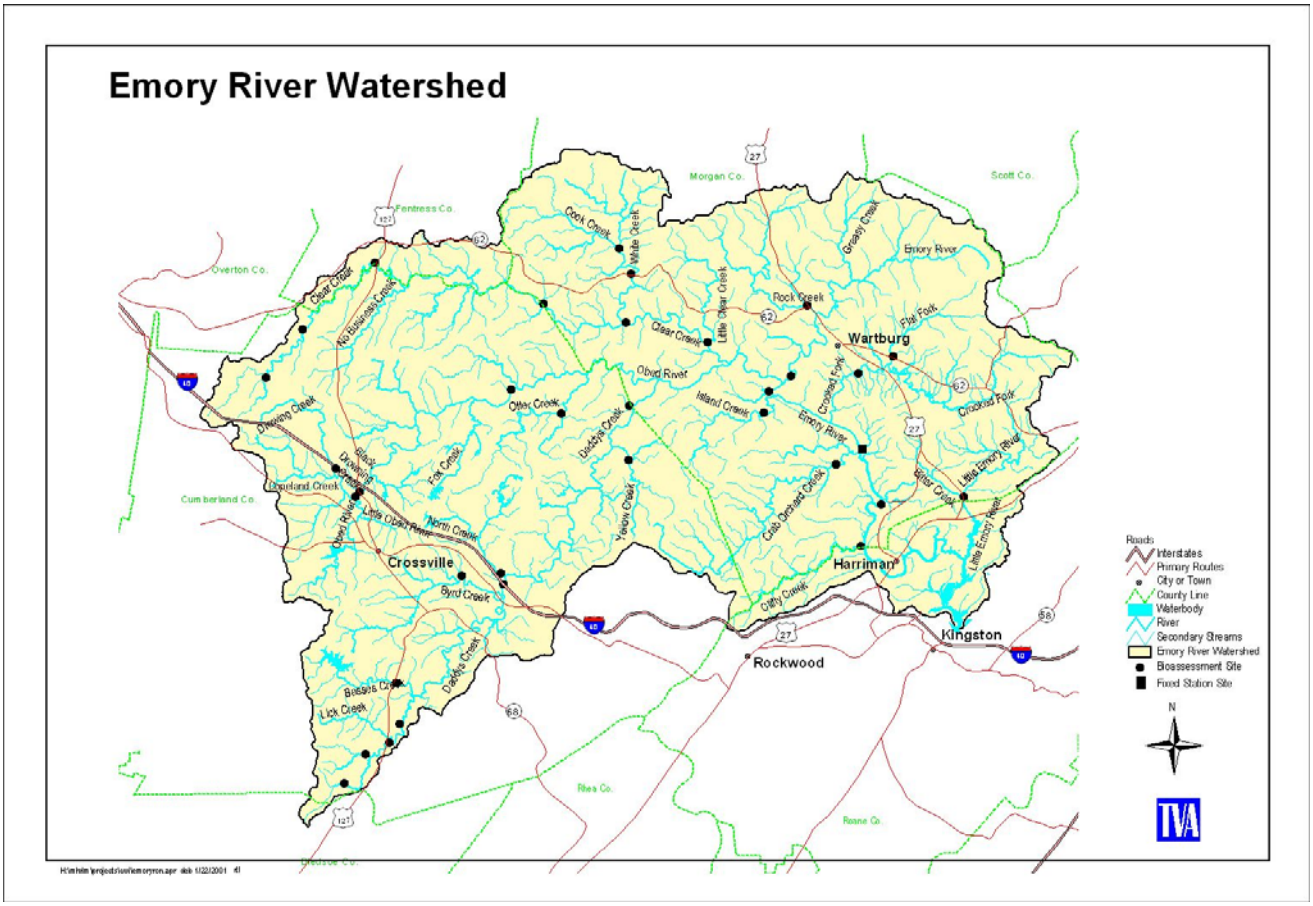

Figure 5-2. TVA Sampling Sites in Emory River Watershed.

Details about stream bioassessment sampling sites and scores can be obtained by writing Charles Saylor at Tennessee Valley Authority, PO Box 920, Ridge Way Road, Norris, TN 37818 or calling him at 865/632-1779.

Fixed Station Monitoring

TVA monitors the quality of water resources in the 18 largest rivers (having drainage areas of over 500 square miles) in the Tennessee Valley as part of its Fixed Station Monitoring Program. This program was started in 1986. Fixed Station sites are sampled more intensively than stream bioassessment sites. The Emory River near Deermont (River Mile 21.4) is sampled every other year as part of this program. Physical, chemical, and biological indicators provide information on the ecological health of these rivers. Biological sampling includes IBI, Benthic Index of Biotic Integrity (B-IBI) and habitat assessment. IBI and habitat assessment procedures are similar to the stream bioassessment program (described above). Physical and chemical parameters are listed below.

Parameter	Unit
Temp	(^{o}C)
Dissolved Oxygen	(mg/l)
pH	
Conductivity	(mohms/cm)
Hardness	(mg/l $CaCo_3$)
TOC	(mg/l)
NH3-N	(mg/l)
NO2+NO3-N	(mg/l)
Total Phos	(mg/l)
Total Dissolved Solids	(mg/l)
Total Suspended Solids	(mg/l)
Total Ca	(mg/l)
Total Mg	(mg/l)
Total Al	(mg/l)
Total Fe	(mg/l)
Total Mn	(mg/l)
Total Cu	(mg/l)
Total Zn	(mg/l)

B-IBI -- B-IBI is a more rigorous assessment protocol than the EPT counts used in the stream bioassessment program. Sampling combines qualitative and quantitative samples (Surber and Hess) and requires laboratory processing.

Qualitative samples are collected using a ½ meter kick net and forceps. Samples are compiled from searches focused on seven prescribed habitats: riffle, leaf packs, coarse woody debris, large rubble/boulder, root wads, aquatic vegetation, and sediment (or deposition substrate). Two efforts (1/2 meter kicks, sweeps or grabs) are spend in each of these habitats. Material gathered from each habitat is picked qualitatively for approximately 15 minutes (materials are placed in a white pan to enhance picking when appropriate).

Quantitative sampling consists of three Surber samples taken in shallow riffles and three Hess samples collected in pools at the upstream end of riffles. For each quantitative sample, substrate within the sampling frame is disturbed to a depth of 2-4 inches in order to collect burrowing mayflies, oligochaets, and mollusks. The area within the sampling frame is also visually inspected to collect mollusks and attached organisms that may not wash into the sampler's net.

Samples are transferred into collection jars containing 10 percent formalin and an appropriate label. Samples are sent to a private company (Pennington and Associates, Cookeville, Tennessee), where organisms are sorted, identified to the lowest feasible level of taxonomy (usually species) and enumerated. Data is then computerized and sent to TVA biologists in Norris, Tennessee, or Chattanooga, Tennessee, where it is reviewed before being entered into TVA's data base.

Ecological health of the benthic community is assessed using a modified version of the B-IBI analysis (Kerans and Karr 1994). This assessment is based on 12 ecological measures of the benthic community. Metrics and their scoring criteria are best suited for assessing rivers and larger streams (100 square miles +) in the Tennessee Valley.

Details about Fixed Station Monitoring sampling program can be obtained by writing Charles Saylor at Tennessee Valley Authority, PO Box 920, Ridge Way Road, Norris, TN 37818 or calling him at 865/632-1779 (bioassessment information) or Donald Dycus at: Tennessee Valley Authority, 1101 Market Street, Chattanooga, Tennessee 37402 or calling him at 423/751-7322 (physical and chemical information).

Fish Flesh Toxic Contaminants -- Several agencies cooperate to keep abreast of contaminant levels in fish from Watts Bar Reservoir (including the Emory River Embayment) because of existing fish consumption advisories there (see page XX for details on advisories). TVA is a primary participant in this effort and collects and analyzes fish from Watts Bar on a routine basis. TVA collected channel catfish and largemouth bass for broad spectrum analysis in autumn 1996 and 2000. Channel catfish were also collected in autumn 1998 and analyzed for PCBs and selected pesticides. Results for the 2000 survey are not yet available, but results for 1996 and 1998 show no dramatic change in PCB levels (the primary contaminant of concern) or any additional contaminants that should be of concern.

Further information on TVA's Fish Flesh Toxic Contaminant studies can be obtained by writing to Donald Dycus at: Tennessee Valley Authority, 1101 Market Street, Chattanooga, Tennessee 37402 or calling him at 423/751-7322.

WATERSHED ASSISTANCE

Outreach

National Clean Boating Campaign -- The National Clean Boating Campaign is a partnership program that highlights the importance of clean water so boating will continue to be fun and safe for future generations. The program demonstrates how boaters can be good stewards of their water environment through best boating and marina practices. The Clean Boating Campaign on Watts Bar Reservoir, including the Emory River Embayment, began in 1999 with materials distributed to local marinas that expressed an interest in the program. TVA plans to continue this partnership in upcoming years.

Watershed education -- TVA's Melton Hill watershed assists schools in the Emory River watershed in providing water quality education for their students and teachers. In 2000, TVA provided water quality training to 10 teachers in the Emory River watershed; helped four schools with field trips that provided hands-on environmental education for 100 students; provided grants to two schools to enable them to purchase water quality sampling equipment; and assisted students and teachers with clean up and restoration projects.

Watershed Teams provide easy to understand information about the condition of water resources and factors impacting resource quality. For example, in 2000, the Melton Hill Watershed Team assisted a consortium of recreational and environmental organizations prepare an insert to the Morgan County News that described the Obed/Emory River watershed, its conditions, impacts and efforts to improve and protect the watershed. TVA is currently assisting this consortium in developing a slide presentation about the Emory River and its watershed.

Protection and Restoration Activities

Promote Best Management Practices -- In 2000, TVA provided the Morgan County Soil Conservation District with funds to expand efforts to raise awareness of water resources issues and promote the use of agricultural best management practices throughout Morgan County. In 2001, TVA is providing cost share funds to stabilize to severely eroding sections of stream bank along Flat Fork.

Support Clean Up Efforts -- Keep Roane Beautiful receives funds from TVA to remove trash and litter and other pollution from boat ramps, informal recreation sites, and along roadsides and streambanks. The funds are for establishing and supporting community-led cleanups, education programs, and prevention measures.

Promote Riparian Buffers – An effective line of water quality protection is maintaining the vegetative plant cover along waterbodies. TVA encourages waterfront property owners to maintain or establish vegetated riparian buffers by providing information and materials to the riparian property owner. In 2000, TVA partnered with the Morgan County Soil Conservation District in providing 50 packages of native riparian plant seedlings riparian to property owners in the Emory River watershed. In addition to continuing the seedling give a way, TVA's 2001 plans include developing education materials for riparian property owners (handbook, fact sheets and slide presentation) and conducting workshops on managing riparian property. Further information on TVA's riparian buffer materials can be obtained by writing the Melton Hill Watershed Team at: Tennessee Valley Authority, 2009 Grubb Road, Lenoir City, Tennessee 37771-7129 or calling them at 865/988-2440.

Additional information about riparian buffers can be obtained from EPA (http://www.epa.gov/owow/showcase) and USDA (http://www.nhq.nrcs.usda.gov/CCS/Buffers.html)

Coalition Support

Citizen Based Organizations -- Citizen based watershed organizations can play a critical role in watershed protection. TVA's watershed teams work to strengthen these organizations by providing assistance in the areas of understanding the local watershed, its conditions, impacts, and threats; developing and implementing strategies to protect or improve resource quality; fundraising; river issues; and organizational development. In 1999, the Melton Hill Watershed Team initiated a series of workshops for watershed organizations. Past workshops have covered, state and federal water quality protection

programs, grant writing, fund raising, and strategic planning. In 2001, workshops will cover managing growth to protect water resources, and how to build a proactive organization.

In 1999, TVA partnered with the East Tennessee Foundation to initiate a grant program to provide community groups will enable them to engage in watershed improvement activities. The Emory River Watershed Association received a grant for water quality education activities from this program.

Inter-agency Partnership -- The benefits of watershed partnerships are well documented. No one unit of government, agency, group or individual has all the knowledge, expertise or resources to address watershed issues involving complex, interconnected ecosystems. Partnerships can tap a diversity of energy, talent, and ideas. Watershed partnerships can also promote a more efficient use of limited financial and human resources and can identify innovative and efficient means of improving or protecting water quality. TVA strongly encourages local, state, federal and private organizations to initiate a partnership focused on improving and protecting water resources in the Obed/Emory River watershed and will commit to supporting or facilitating this watershed partnership by providing information, financial assistance, staff support, and technical assistance, as needed

Further information on TVA's Watershed Assistance activities in the Emory River watershed can be obtained by writing the Melton Hill Watershed Team at: Tennessee Valley Authority, 2009 Grubb Road, Lenoir City, Tennessee 37771-7129 or calling them at 865/988-2440.

5.2.E. National Park Service. The Obed Wild and Scenic River (WSR) was established as a component of the National Wild and Scenic Rivers System by an act of the United States Congress (Public Law 94-486) on October 12, 1976. As such, it joined other streams in the United States that "possess outstandingly remarkable scenic, recreational, geologic, fish and wildlife, historic, cultural, or other similar values…in free-flowing condition." The law further stipulates that these streams "shall be protected for the benefit and enjoyment of future generations." The Obed WSR is primarily managed by the National Park Service (NPS), although the Tennessee Wildlife Resources Agency (TWRA) manages those lands in the WSR "that are part of the Catoosa Wildlife Management Area (Catoosa WMA)." The wild nature of the Obed WSR provides a setting for outdoor recreational activities, including whitewater canoeing and kayaking, and hiking.

The Obed WSR encompasses 45.2 miles of portions of the Obed and Emory Rivers, and Clear and Daddys Creek in Morgan and Cumberland Counties in Tennessee. The Obed WSR is characterized by sandstone gorges up to 400 feet deep along the stream corridors. The Obed WSR has been designated an "Outstanding National Resource Water," and has attained a "Tier III" designation from the State of Tennessee for its water quality.

In cooperation with the USGS Water Resources Division and TWRA, three automated gauging stations were maintained in the watershed of the Obed WSR at: Antioch Bridge, Alley Ford and Lilly Bridge. In addition, staff plates were installed on 12 of the park's

major tributaries. These sites will be used to establish long-term baseline flow data for the Obed WSR.

A freshwater mussel survey was initiated in cooperation with USGS, TWRA and NPS in the year 2000. The preliminary results indicate there are low abundance and low diversity in mussels. One endangered species, however, was encountered, the Cumberland Purple Bean mussel (*Villosa perpurpurea*).

General information on the Obed Wild and Scenic River can be gotten by contacting http://www.nps.gov/obed, or by phoning (423) 346-6294.

5.3 STATE PARTNERSHIPS.

5.3.A. TDEC Division of Water Supply. Congress, the Environmental Protection Agency, and the states are increasing their emphasis on the prevention of pollution, particularly in the protection of the raw water sources for public water systems. The initial step toward prevention of contamination of public water supplies came with the Federal Safe Drinking Water Act Amendments of 1986. At that time, each state was required to develop a wellhead protection program to protect the water source of public water systems relying on groundwater (wells or springs). The new Source Water Assessment provisions of the Federal Safe Drinking Water Act of 1996 Amendments expanded the scope of protection beyond groundwater systems to include protection of the waters supplying surface water systems.

More information may be found at: http://www.state.tn.us/environment/dws .

Figure 5-3. Location of Communities Using Groundwater for Water Supply in Emory River Watershed.

A “wellhead” is the source area for the water, which is withdrawn through a well or spring, similar to the concept of the head of a river. To protect the water supply, it is important to know from where the water flowing to that well or spring is coming. Source water/wellhead protection areas for public water systems using groundwater are generally based on hydrologic considerations and/or modeling. Source water protection areas for public water systems using surface water are based on the portion of the watershed area upstream of the water intake.

There are three basic steps involved in a wellhead protection program: 1) defining the wellhead protection area, 2) inventorying the potential contaminant sources within that area, and 3) developing a wellhead protection plan. The official designation of wellhead protection areas provides valuable input and emphasis to government agencies in the siting of facilities and the prioritization and cleanup of contaminated sites.

Figure 5-4. Location of Communities that Have Developed a Wellhead Protection Program in Emory River Watershed.

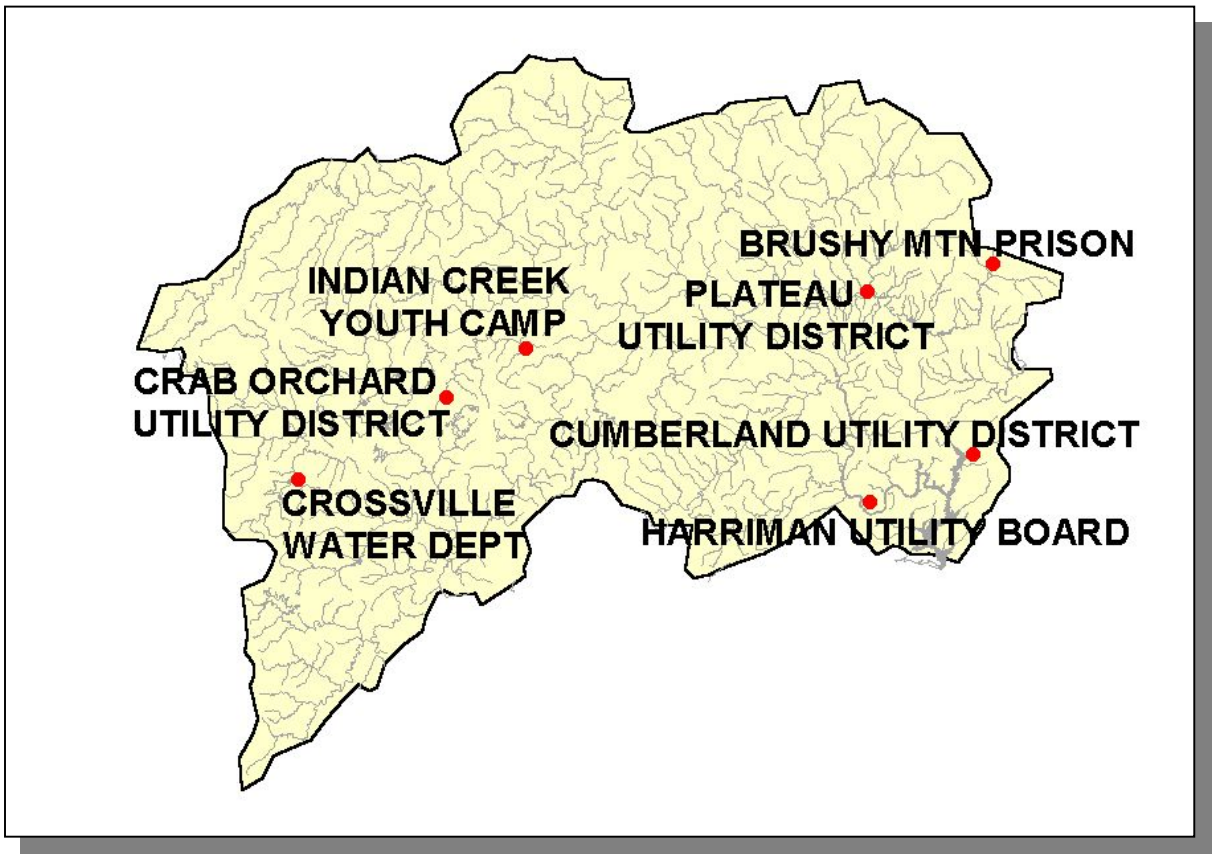

Figure 5-5. Location of Communities with Surface Water Intakes for Water Supply in Emory River Watershed.

As a part of the Source Water Assessment Program, public water systems are evaluated for their susceptibility to contamination. These individual source water assessments with susceptibility analyses are available to the public at http://www.state.tn.us/environment/dws as well as other information regarding the Source Water Assessment Program and public water systems.

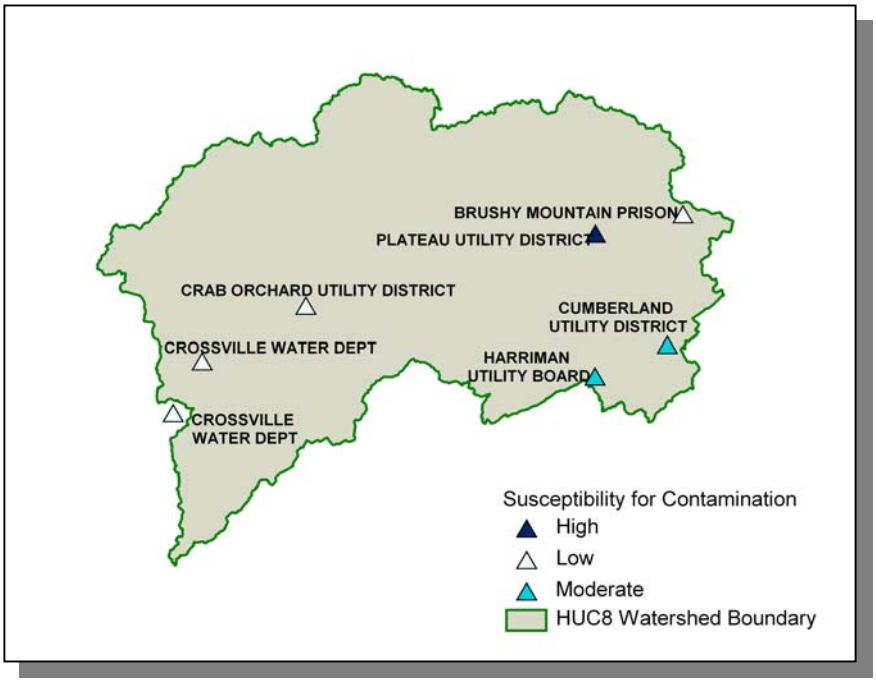

Figure 5-6. Susceptibility for Contamination in the Emory River Watershed.

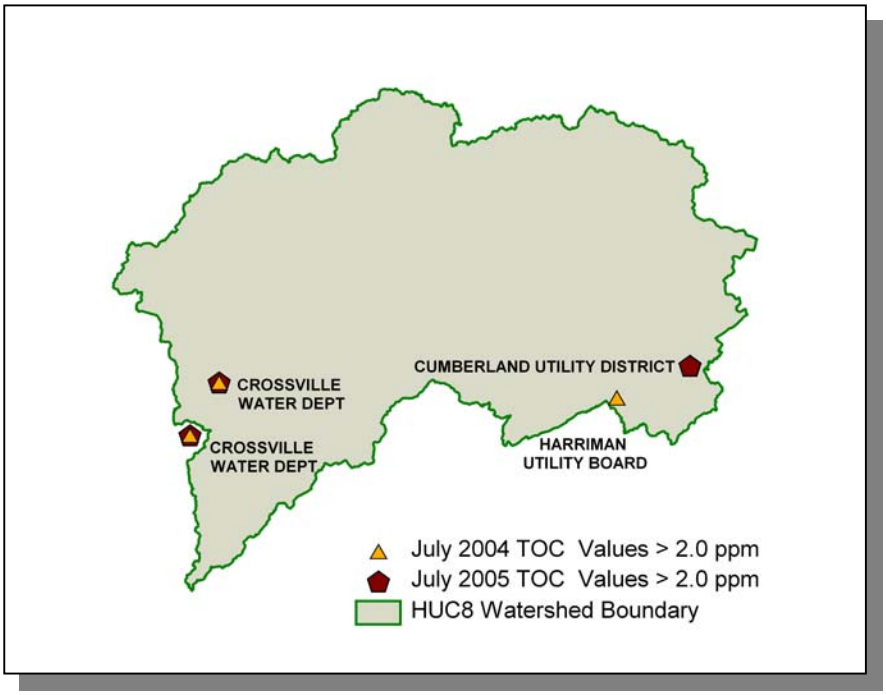

Figure 5-7. July 2004 and 2005 Raw Water Total Organic Carbon (TOC) Analysis in the Emory River Watershed.

5.3.B. State Revolving Fund. TDEC administers the state's Clean Water State Revolving Fund Program. Amendment of the Federal Clean Water Act in 1987 created the Clean Water State Revolving Fund (SRF) Program to provide low-interest loans to cities, counties, and utility districts for the planning, design, and construction of wastewater facilities. The U.S. Environmental Protection Agency awards annual capitalization grants to fund the program and the State of Tennessee provides a twenty-percent funding match. TDEC has awarded loans totaling approximately $500 million since the creation of the SRF Program. SRF loan repayments are returned to the program and used to fund future SRF loans.

SRF loans are available for planning, design, and construction of wastewater facilities, or any combination thereof. Eligible projects include new construction or upgrading/expansion of existing facilities, including wastewater treatment plants, pump stations, force mains, collector sewers, interceptors, elimination of combined sewer overflows, and nonpoint source pollution remedies.

SRF loan applicants must pledge security for loan repayment, agree to adjust user rates as needed to cover debt service and fund depreciation, and maintain financial records that follow governmental accounting standards. SRF loan interest rates range from zero percent to market rate, depending on the community's per-capita income, taxable sales, and taxable property values. Most SRF loan recipients qualify for interest rates between 2 and 4 percent. Interest rates are fixed for the life of the term of the loan. The maximum loan term is 20 years or the design life of the proposed wastewater facility, whichever is shorter.

TDEC maintains a Priority Ranking System and Priority List for funding the planning, design, and construction of wastewater facilities. The Priority Ranking List forms the basis for funding eligibility determinations and allocation of Clean Water SRF loans. Each project's priority rank is generated from specific priority ranking criteria and the proposed project is then placed on the Project Priority List. Only projects identified on the Project Priority List may be eligible for SRF loans. The process of being placed on the Project Priority List must be initiated by a written request from the potential SRF loan recipient or their engineering consultant. SRF loans are awarded to the highest priority projects that have met SRF technical, financial, and administrative requirements and are ready to proceed.

Since SRF loans include federal funds, each project requires development of a Facilities Plan, an environmental review, opportunities for minority and women business participation, a State-approved sewer use ordinance and Plan of Operation, and interim construction inspections.

For further information about Tennessee's Clean Water SRF Loan Program, call (615) 532-0445 or visit their Web site at http://www.tdec.net/srf.

Figure 5-8. Location of Communities Receiving SRF Loans or Grants in the Emory River Watershed. *More information is provided in Emory-Appendix V.*

5.3.C. Tennessee Department of Agriculture. The Tennessee Department of Agriculture's Water Resources Section consists of the federal Section 319 Nonpoint Source Program and the Agricultural Resources Conservation Fund Program. Both of these are grant programs which award funds to various agencies, non-profit organizations, and universities that undertake projects to improve the quality of Tennessee's waters and/or educate citizens about the many problems and solutions to water pollution. Both programs fund projects associated with what is commonly known as "nonpoint source pollution."

The Tennessee Department of Agriculture's Nonpoint Source Program (TDA-NPS) has the responsibility for management of the federal Nonpoint Source Program, funded by the US Environmental Protection Agency through the authority of Section 319 of the Clean Water Act. This program was created in 1987 as part of the reauthorization of the Clean Water Act, and it established funding for states, territories and Indian tribes to address NPS pollution. Nonpoint source funding is used for installing Best Management Practices (BMPs) to stop known sources of NPS pollution, training, education, demonstrations and water quality monitoring. The TDA-NPS Program is a non-regulatory program, promoting voluntary, incentive-based solutions to NPS problems. The TDA-NPS Program basically funds three types of programs:

- BMP Implementation Projects. These projects aid in the improvement of an impaired waterbody, or prevent a non-impaired water from becoming listed on the 303(d) List.

- Monitoring Projects. Up to 20% of the available grant funds are used to assist the water quality monitoring efforts in Tennessee streams, both in the state's 5-year watershed monitoring program, and also in performing before-and-after BMP installation, so that water quality improvements can be verified.

- Educational Projects. The intent of educational projects funded through TDA-NPS is to raise the awareness of landowners and other citizens about practical actions that can be taken to eliminate nonpoint sources of pollution to the waters of Tennessee.

The Tennessee Department of Agriculture Agricultural Resources Conservation Fund Program (TDA-ARCF) provides cost-share assistance to landowners across Tennessee to install BMPs that eliminate agricultural nonpoint source pollution. This assistance is provided through Soil Conservation Districts, Resource Conservation and Development Districts, Watershed Districts, universities, and other groups. Additionally, a portion of the TDA-ARCF is used to implement information and education projects statewide, with the focus on landowners, producers, and managers of Tennessee farms and forests.

Participating contractors in the program are encouraged to develop a watershed emphasis for their individual areas of responsibility, focusing on waters listed on the Tennessee 303(d) List as being impaired by agriculture. Current guidelines for the TDA-ARCF are available. Landowners can receive up to 75% of the cost of the BMP as a reimbursement.

The Tennessee Department of Agriculture has spent $189,539 for Agriculture BMPs in the Emory River Watershed since 1998. Additional information is provided in Emory Emory-Appendix V.

Since January of 1999, the Department of Agriculture and the Department of Environment and Conservation have had a Memorandum of Agreement whereby complaints received by TDEC concerning agriculture or silviculture projects would be forwarded to TDA for investigation and possible correction. Should TDA be unable to obtain correction, they would assist TDEC in the enforcement against the violator.

5.3.D. Tennessee Wildlife Resources Agency. The Tennessee Wildlife Resources Agency conducts a variety of activities related to watershed conservation and management. Fish management activities include documentation of fish and aquatic life through stream sampling and stocking of both warm water and cold water sportfish. Fish data are managed in the Geographic Information System (GIS) project called Tennessee Aquatic Data System (TADS). TWRA nongame and endangered species projects include restoration of special status fish ,aquatic life, and riparian wildlife including otters, and nongame fish such as the blue masked darter. The Agency conducts a variety of freshwater mussel management, conservation, and restoration projects including the propagation and reintroduction of species once common in Tennessee streams. TWRA

has been involved in riparian conservation projects since 1991 in partnership with state and federal agencies and conservation groups.

For information on these and other water resources related activities, please contact your Regional TWRA office at the following phone numbers:

West Tennessee (Region I)	1-800-372-3928
Middle Tennessee (Region II)	1-800-624-7406
Cumberland Plateau (Region III)	1-800-262-6704
East Tennessee (Region IV)	1-800-332-0900.

TDD services are available @ 615-781-6691.
TWRA's website is http://www.state.tn.us/twra.

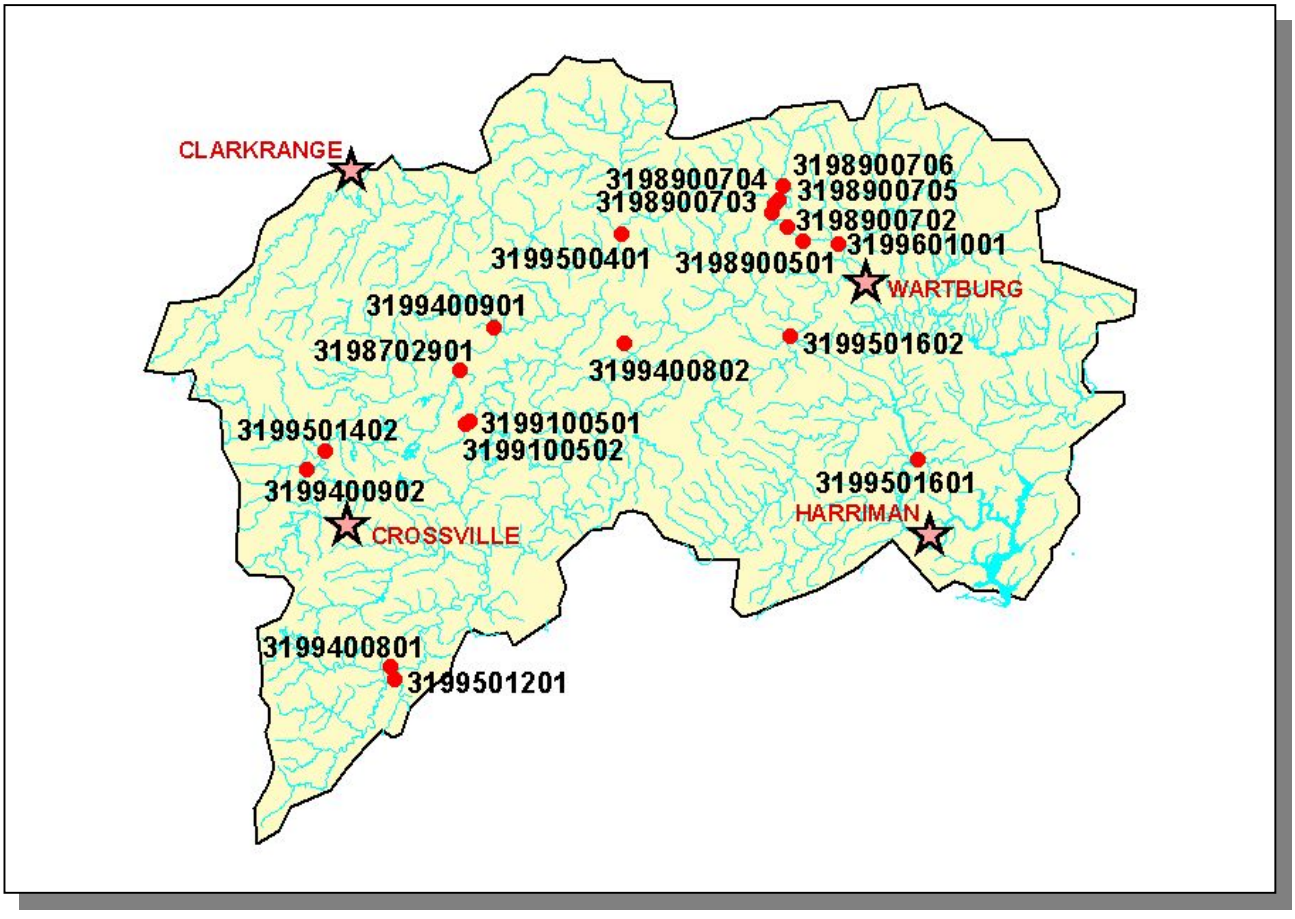

Figure 5-9. Location of TWRA TADS Sampling Sites in Emory River Watershed. *Locations of Clarkrange, Crossville, Harriman, and Wartburg are shown for reference. Additional Information is presented in Emory-Appendix V.*

5.4 LOCAL INITIATIVES.

5.4.A. Emory River Watershed Association. The purpose of this Association is to restore, maintain and safeguard the water quality of the Emory River watershed and its resources. Long term monitoring of water quality is one of the goals of the Association as well as streambank stabilization.

People determine how land is used. These land use decisions are usually driven by immediate economic considerations with little overall planning or thought to the long term effects of those actions. This often creates problems for our water resources, problems that individuals often feel helpless to confront.

Early in 1999, a group of concerned citizens met for the first time to discuss the condition and some of the problems facing the Emory River. From this core group emerged the Emory River Watershed Association (ERWA) - a grassroots effort of citizens concerned about the responsible stewardship of the Emory River and the watershed resources as a whole. The Emory River watershed includes parts of Morgan, Roane, and Cumberland Counties. Of the eight tributary creeks, three are on the Tennessee Impaired Waters List in poor condition. The Emory River section of the Watts Bar Reservoir is also listed in poor condition. From the mining history in the area and the channelization of tributary streams to combat flooding, to current nonpoint source pollution, the ERWA is partnering with various agencies, organizations, businesses, landowners and individuals to improve the quality of water in the watershed through education and action.

The ERWA has been actively participating in bringing water quality education into local schools with programs such as 'Kids in the Creek,' enabling teachers and students to learn about water testing and sampling from natural resource professionals from TVA, NRCS, UT, and TDEC. ERWA also organized a 'Headwater to Tap Water' field trip for two local schools incorporating a tour of the water treatment facility. A trash pickup at Clifty Creek was also conducted. Funding has been obtained through the East Tennessee Foundation to support the printing of informative placemats intended to educate and foster appreciation of the Emory River and an awareness of the Association's restoration and protection efforts within the watershed.

Education of and action from raindrop to drainage into the Tennessee River, the ERWA is providing a collective voice for individuals who might otherwise feel helpless in promoting the quality of the creeks and rivers of the Emory River Watershed.

For more information, contact:

Martin R. Schubert, Chair
Emory River Watershed Association
515 Cassell Rd.
Oliver Springs, TN 37840

423-324-4925
utforest_cfs@highland.net

5.4.B. Tennessee Citizens for Wilderness Planning (TCWP). The mission of TCWP is to protect and preserve wild and natural areas. Our formal mission statement is much longer: TCWP is dedicated to achieving and perpetuating protection of natural lands and waters by means of public ownership, legislation, or cooperation of the private sector. While our first focus is on the Cumberland and Appalachian regions of East Tennessee, our efforts may extend to the rest of the state and the nation. TCWP's strength lies in researching information pertinent to an issue, informing and educating our membership and the public, interacting with groups having similar objective, and working through the legislative, administrative, and judicial branches of government on the federal state and local levels. TCWP published a bi-monthly newsletter that has been called one of the most infomative newsletters in the country.

Over the past 35 years, TCWP has taken an active role in many issues related to the Obed River. These are just a few examples of the work that we have been involved in:

- The Obed River was included in study category of newly passed Wild and Scenic Rivers Act of 1968.
- The Obed System was authorized as a National Wild and Scenic River (45 miles) in 1976.
- The Obed General Management Plan and other plans were drafted with TCWP's participation from 1992 to 1995.
- The Obed River was designated an Outstanding National Resource Water in 1999.

The work at the Obed continues. TCWP is currently actively involved in preventing dams from being built that would threaten the Obed and is participating in the public process for the new climbing plan and an update of the roads and trails plan. We also partnered with the Tennessee Paddle Fest organization to put on the Paddle Fest last year and are working with them again this year.

Points of contact for issues related to the Obed River include:

- Jimmy Groton, President
  865-483-5799
- Chuck Estes, Chair of the Water Issues Committee
  865-482-7374
- Lee Russell, Board Member
  865-482-2153
- Marcy Reed, Executive Director
  865-691-8807

The TCWP home page is http://www.korrnet.org/tcwp/

5.4.C. Tennessee Paddle. Tennesse Paddle is a non-profit coalition of recreational conservationists drawn from selected non-profit organizations which share concern for the Obed/Emory Watershed.

The major focus of Tennessee Paddle is the conservation and protection of the water and land resources in the Cumberland Plateau area, particularly the Obed/Emory. Other

activities of Tennessee Paddle include working with area schools and youth groups to promote long-term conservation stewardship efforts and assistance in providing input to Morgan County and the City of Wartburg on sustainable development to include conservation and recreation.

Tennessee Paddle hosts an annual Festival in April of each year as a way to raise funds and awareness about the shared missions of its host team.

For more information, contact:

Tennessee Paddle
PO Box 2441
Knoxville, TN 37901
info@tennesseepaddle.com

Or visit the homepage at: http://www.tennesseepaddle.com

5.4.D. Obed Watershed Association. The Obed Watershed Association intends to mobilize as many stakeholders as possible and practical to become advocates for restoring, preserving and appreciating the Obed River and its watershed. It has sponsored several events in the last two years in the Obed Wild & Scenic River, including caravans of cars to visit Lilly Overlook, hikes, and a musical serenade and song fest (including a bag piper).

In conjunction with the Cumberland Chapter of Save Our Cumberland Mountains (SOCM) and the Cumberland Countians for Peace & Justice, we have formed 6 areas of concern.

Water Quality, Supply and Safety has been addressed with at least 8 op-ed columns, several letters to the editor, a couple public meetings and a couple hearings with legislators, a public meeting with the County Executive, visits to utility board meetings, and a tour of the Crossville Sewage Treatment Facility and a water treatment facility. This concern and others led to exhibits at the County Fair, Heritage Day, Earth Day and the Paddlers Festival in addition to several meetings.

The Forestry concern led to participation with the SOCM Forestry Committee, meetings with legislators, plane rides over the area with some reporters and officials, and a photographic trip with a lumber truck from clear-cut to a chip mill. The latter was made into an exhibit.

Our concern about Mining led us to work with SOCMs Strip Mining Committee and op-eds and columns in newspapers and other publications, trying to bring attention to violations at the Cumberland Coal Company. We met with officials from the Office of Surface Mining and sent several requests for information and challenges to many governmental officials repeatedly via e-mail.

Sustainable Development has been addressed with two 5 session workshops on Smart Talk for Growing Communities which involved 35 community leaders. Results were

published and have been used in testimony on proposals to expand the Fairfield Glade treatment plant 500% and impound Cove Branch for a recreational lake. We also worked some with the Planning Commissions in Crossville and Pleasant Hill.

Tourism and Recreation has been discussed in several venues but has yet to be effectively addressed but the Chamber of Commerce is waking up to its potential. We have suggested to legislators that expanding the Obed W & S toward Route 40 along Daddys Creek would be a great asset.

Valuing the Watershed has involved recruiting and training over twenty parataxonomists who have been collecting plants for identification by Tennessee Technical University.

The Obed Watershed Newsletters are now infrequent to about 250 people but the SOCM mailing list of 150 gets monthly newsletters.

The groups are presently considering a year long media campaign to inform, assess and empower Cumberland County residents about how growth in the County impacts drinking water supply and quality, sewage, community cohesiveness and quality of life.

Donald. B. Clark is convener and can be reached at (931) 277-5467. The address is P.O.Box 220, Pleasant Hill, TN 38567